

834HTC- B**HIGH THERMAL CONDUCTIVITY EPOXY**

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: 834HTC-B**Related Part #** 834HTC-900ML, 834HTC-4.25L

Recommended Use and Restriction on Use

Use: Epoxy hardener for use with resins**Uses Advised Against:** Not for use as a spray coating

Details of Manufacturer or Importer

ManufacturerMG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADAMG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA**☎** +1-800-340-0772**FAX** +1-800-340-0773**E-MAIL** support@mgchemicals.com**WEB** www.mgchemicals.com**☎** +1-905-331-1396**FAX** +1-905-331-2682**E-MAIL** info@mgchemicals.com**E-MAIL** (Competent Person): sds@mgchemicals.com

Emergency Phone Number




For hazardous material incidents ONLY (leaks, spills, fires, exposures or accidents) USA or CANADA—Call CHEMTREC at **+1-800-424-9300****For emergencies involving the transport of dangerous goods;** 24/7 service CANADA—Call CANUTEC collect at **+1-613-996-6666** or ***666** on cellular phones

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Section 2: Hazard(s) Identification
Classification of the Chemical Material
GHS Categories

Criteria		Category	Signal Word	Pictograms
Serious Eye Damage		1	Danger	Corrosion
Skin Corrosion		1	Danger	Corrosion
Acute Toxicity	Dermal	3	Danger	Skull and crossbones
Acute Toxicity	Oral	4	Warning	Exclamation
Acute Toxicity	Inhalation	4	Warning	Exclamation
Sensitization	Skin	1	Warning	Exclamation
Specific Target Organ Toxicity	Repeated Exposure	2	Warning	Health
Hazardous to the Aquatic Environment	Chronic	3	None	None


Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

Label Elements

Signal Word	DANGER
Pictograms	Hazard Statements
	H314: Causes severe skin burns and eye damage
	H311: Toxic in contact with skin
	H302: Harmful if swallowed H332: Harmful if inhaled H317: May cause an allergic skin reaction

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Pictograms	Hazard Statements
	H373: May cause damage to liver, adrenal gland, heart, and blood through prolonged or repeated exposure
<i>No symbol Mandated</i>	H412: Harmful to aquatic life with long lasting effects
Prevention	Precautionary Statements
P102	Keep out of reach of children.
P260	Do not breathe fumes/vapors.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
Response	Precautionary Statements
P310	For all routes of exposure: Immediately call a POISON CENTER/doctor.
P361 + P364	IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash before reuse. Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P312, P330 + P331	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting.
P391	Collect spillage.

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Storage	Precautionary Statements
P405	Store locked up.
Disposal	Precautionary Statements
P501	Dispose of contents/container in accordance to local/regional/international regulations.

Hazards Not Otherwise Classified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
Scleroderma	Long term or repeated exposure may lead to an autoimmune disease that results in hardening of the skin and can affect the internal organs.	None	None

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine	64%
6864-37-5	2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	24%

Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code: Precautionary Statement</i>
IF INHALED	P304 + P340, P310
Immediate Symptoms	<i>irritation, cough, sore throat, burning sensation, labored breathing, shortness of breath</i>
Response	Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

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IF IN EYES	P305 + P351 + P338, P310
Immediate Symptoms	<i>redness, severe irritation, pain, burns</i>
Response	Rinse cautiously with water for 30 minutes or more. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair)	P361 + P364, P310, P333 + P313
Immediate Symptoms	<i>redness, irritation, rash (allergic contact dermatitis), pain, chemical burns, blistering</i>
Response	Take off immediately all contaminated clothing and wash before reuse. Wash with plenty of water. Immediately call a POISON CENTRE/doctor. If skin irritation or rash occurs: Get medical advice/attention.
IF SWALLOWED	P301 + P312, P310, P330 + P331
Immediate Symptoms	<i>irritation, abdominal pain, burning sensation, shock or collapse</i>
Response	Immediately call a POISON CENTER/doctor. Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting

Section 5: Fire-Fighting Measures

Extinguishing Media	In case of fire: Use extinguishing media suitable for surrounding materials.
Specific Hazards	Not flammable or combustible, but burns if involved in a fire. Produces irritating and toxic fumes in fires or in contact with hot surfaces. Toxic for aquatic environment: Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO, CO ₂), nitrogen oxides (NO _x), nitric acid, ammonia, and other toxic fumes.
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

834HTC- B***HIGH THERMAL CONDUCTIVITY EPOXY*****Section 6: Accidental Release Measures**

Personal Protection	Use personal protection recommended in Section 8.
Precautions for Response	Do not breathe fumes/vapors.
Environmental Precautions	Avoid releasing to the environment. Prevent spill from entering drains and waterways. Do not flush to sewer.
Containment Methods	Contain with inert absorbent (such as soil, sand, vermiculite).
Cleaning Methods	Collect liquid in a sealable container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wipe residue with a paper towel wetted with a suitable organic solvent such as alcohol or ethyl lactate, and place dirty towels in container. Wash spill area with soap and water to remove the last traces of residue.
Disposal Methods	Dispose spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Keep out of reach of children. Do not breathe fumes/vapors. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink, or smoke when using this product. Avoid release to the environment.
Handling	Wear protective gloves/protective clothing/eye protection/face protection. Wash contaminated clothing before reuse. Wash hands thoroughly after handling. Collect spillage.
Storage	Store locked up.

834HTC- B**HIGH THERMAL CONDUCTIVITY EPOXY****Section 8: Exposure Controls/Personal Protection****Substances with Occupational Exposure Limit Values**

Contains no substances with occupational exposure limits.

Note: The ACGIH¹, OSHA, and Canadian provinces exposure limits were consulted. Limits from by RTECS database² and data from suppliers' SDS were also consulted.

Engineering Controls**Ventilation**

Due to low vapor pressure of the product, general ventilation should be adequate for normal use. If the product is heated at high temperatures or worker is allergic, use local ventilation and consider using a full mask with organic vapor cartridges.

Personal Protective Equipment**Eye protection**

Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Use safety glasses with lateral protection (side shields).

Skin Protection

For likely contacts, use of protective butyl rubber, neoprene, or other chemically resistant gloves.

For incidental contacts, use nitrile or other chemically resistant gloves.

Respiratory Protection

For over-exposures up to 10 x OEL of mist/vapors/spray, wear respirator such as a half-mask respirator with organic vapor cartridges.

Above 10 x OEL, use a positive-pressure, air-supplied respirator or a self-contained breathing apparatus.

If the product is heated or worker has a known allergic reaction, consider using a full mask with organic vapor cartridge or with an independent air supply.

RECOMMENDATION: Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

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Section 9: Physical and Chemical Properties

Physical State	Liquid	Lower Flammability Limit	Not available
Appearance	Clear	Upper Flammability Limit	Not available
Odor	Not available	Vapor Pressure @20 °C	Not available
Odor Threshold	Not available	Vapor Density	Not available
pH	Not available	Specific Gravity @25 °C	0.94
Freezing/Melting Point	Not available	Solubility in Water	Insoluble
Boiling Point ^{a)}	≥100 °C [≥212 °F]	Partition Coefficient	Not available
Flash Point	≥116 °C [≥241 °F]	Auto-ignition Temperature	Not available
Evaporation Rate	Not available	Decomposition Temperature	Not available
Flammability (solid, gas)	Not available	Viscosity @25 °C	24 cP

a) Component with the lowest literature value 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)

Section 10: Stability and Reactivity

Reactivity	Reacts exothermically with epoxides.
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Avoid excessive heat and incompatible substances. Do not use in a way that forms a mist or aerosolize the product.
Incompatibilities	Sodium hypochlorite, organic acids, mineral acids, copper, aluminum, zinc, tin alloys, peroxides, strong oxidizing agents
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.

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Section 11: Toxicological Information
Summary of Effects and Symptoms by Routes of Exposure

Eyes	May cause redness, severe eye irritation, pain, and/or burns.
Skin	May cause redness, serious skin irritation, rash (allergic contact dermatitis), pain, chemical burns, or blistering.
Inhalation	Inhalation of vapors may cause irritation, coughing, sore throat, burning sensation, labored breathing, shortness of breath.
Ingestion	May cause irritation, abdominal pain, burning sensation, shock or collapse. May cause allergic reactions (see inhalation symptoms).
Chronic	Prolonged and repeated exposure to uncured epoxy hardener may lead to skin sensitization.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
3-aminomethyl-3,5,5-trimethylcyclohexylamine	1 030 mg/kg Rat	Not available	Not available
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	320 mg/kg Rat	200 mg/kg Rabbit	0.41 mg/L Rat 4 h (mist)

Note: Toxicity data from the RTECS² and ECHA were consulted. The data from supplier (M)SDS were also consulted.

Other Toxicological Effects

Skin corrosion/irritation	The hardener system causes skin burns.
Serious eye damage/irritation	The hardener system causes severe eye damage.
Respiratory and skin sensitization (allergic reactions)	The 3-aminomethyl-3,5,5-trimethylcyclohexylamine component may cause skin sensitization according to animal studies.
Carcinogenicity (risk of cancer)	None of the ingredients are classified or listed as a carcinogen by IARC, ACGIH, CA Prop 65, or NTP.
Mutagenicity (risk of heritable genetic effects)	Based on available data, the classification criteria are not met.

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834HTC- B***HIGH THERMAL CONDUCTIVITY EPOXY*****Reproductive Toxicity**

(risk to sex functions)

Based on available data, the classification criteria are not met.

Teratogenicity

(risk of fetus malformation)

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Long term or repeated exposure to 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine) can cause damage to liver, adrenal gland, heart, and blood.

Aspiration hazardBased on available data, the classification criteria are not met. Mixture does not contain category 1 components, and the kinematic viscosity is >20.5 mm²/s at 40 °C.**Section 12: Ecological Information**

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (<http://echa.europa.eu>), and other reliable sources.

The 3-aminomethyl-3,5,5-trimethylcyclohexylamine (CAS# 2855-13-2) component is an acute category 3 environmental toxicant with minimal LC50 of 110 mg/L for *Leuciscus idus* (Golden orfe); EC50 17.4 mg/L 48 h *Daphnia magna* (water flea), EC50 37 mg/L 72 h *Desmodesmus subspicatus* (green algae).

The 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine), tetraethylenepentamine, naphtha, petroleum, heavy alkylate, phenol compounds are classified as chronic category 2 environmental toxicants.

Acute Ecotoxicity

Category 3

Harmful to aquatic life

Chronic Ecotoxicity

Category 3

Harmful to aquatic life with long lasting effects.

Avoid release to the environment. Collect spillage.

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Biodegradability

Not readily biodegradable

Bioaccumulation

Not available

Other Effects

Not available

Section 13: Disposal Information

Dispose of contents in accordance with all local, regional, national, and international regulations.

Section 14: Transport Information
Ground
Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations); **USA DOT 49 CFR** (Parts 100 to 185) **Regulations.**

Sizes 1 L and under

Limited Quantity

Excepted Quantity E2 ≤30 mL

Sizes greater than 1 L

UN number: UN2922

Shipping Name: CORROSIVE, LIQUID, TOXIC, N.O.S. (3-aminomethyl-3,5,5-trimethylcyclohexylamine, 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine))

Class: 8

Packing Group: II

Marine Pollutant: No

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Air
Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 0.5 L and under

Limited Quantity

Excepted Quantity E2 ≤30 mL

Sizes greater than 0.5 L up to 1 L

UN number: UN2922

Shipping Name: CORROSIVE,
LIQUID, TOXIC, N.O.S. (3-
aminomethyl-3,5,5-
trimethylcyclohexylamine, 2,2'-
dimethyl-4,4'-
methylenebis(cyclohexylamine))

Class: 8

Packing Group: II

Marine Pollutant: No

Sea
Refer to IMDG regulations.

Sizes 1 L and under

Limited Quantity


Sizes greater than 1 L

UN number: UN2922

Shipping Name: CORROSIVE,
LIQUID, TOXIC, N.O.S. (3-
aminomethyl-3,5,5-
trimethylcyclohexylamine, 2,2'-
dimethyl-4,4'-
methylenebis(cyclohexylamine))

Class: 8

Packing Group: II

Marine Pollutant: No


Note: Shipper must be appropriately trained and certified before involvement with the transport of dangerous goods.

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Section 15: Regulatory Information
Canada
Domestic Substance List (DSL)/Non-Domestic Substance Lists (NDSL)

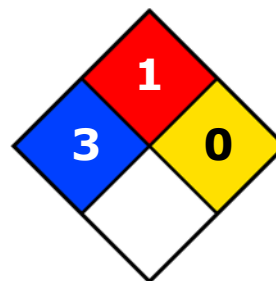
All hazardous ingredients are listed on the DSL/NDSL.

Hazardous Products Act (R.S.C., 1985, c. H-3)

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

USA
Other Classifications
HMIS® RATING

HEALTH:	* 3
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	

NFPA® 704 CODES


Approximate HMIS and NFPA Risk Ratings Legend:

0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

CAA (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

This product does not contain substances that are listed as hazardous air pollutants.

EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product does not contain ingredients that are subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, June 06, 2014 revision, USA).

This product does not contain any substances known to be listed in California.

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834HTC- B**HIGH THERMAL CONDUCTIVITY EPOXY****Europe****RoHS** (Restriction of Hazardous Substances Directive)

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP and complies with European RoHS regulations.

WEEE (Waste Electrical and Electronic Equipment Directive)

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

Section 16: Other Information

SDS Prepared by	Michel Hachey
Date of Review	10 August 2017
Supersedes	Not applicable
Reason for Changes:	New product classified in compliance with WHMIS 2015 and HCS 2012.

Reference

- 1) ACGIH *2017 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices*, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2017).
- 2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
IARC	International Agency for Research on Cancer
NOELR	No observable effect loading ratio
NTP	National Toxicology Program
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
SDS	Safety Data Sheet
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content

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834HTC- B***HIGH THERMAL CONDUCTIVITY EPOXY***

Technical Queries Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

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